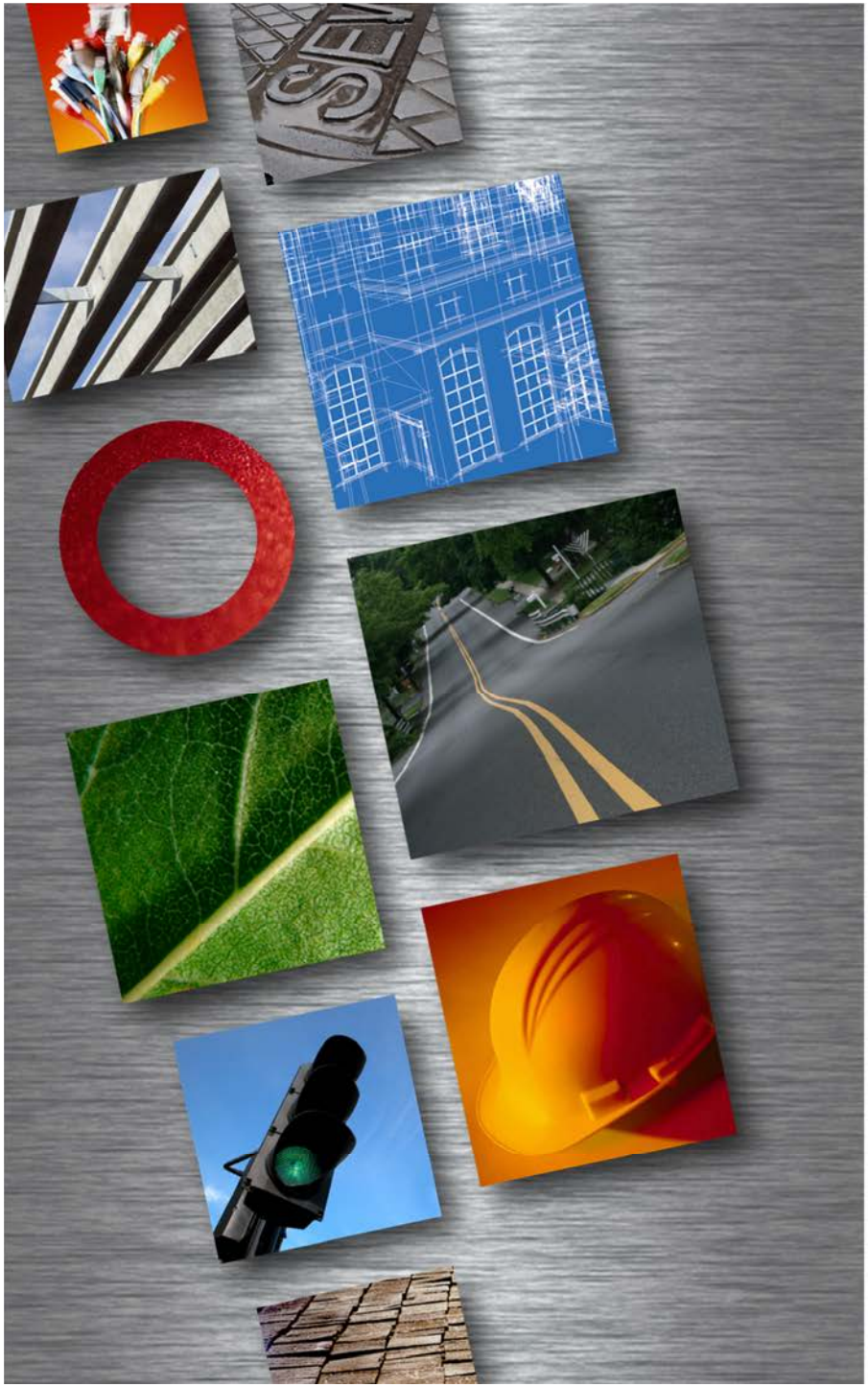

Railroad Impact Study

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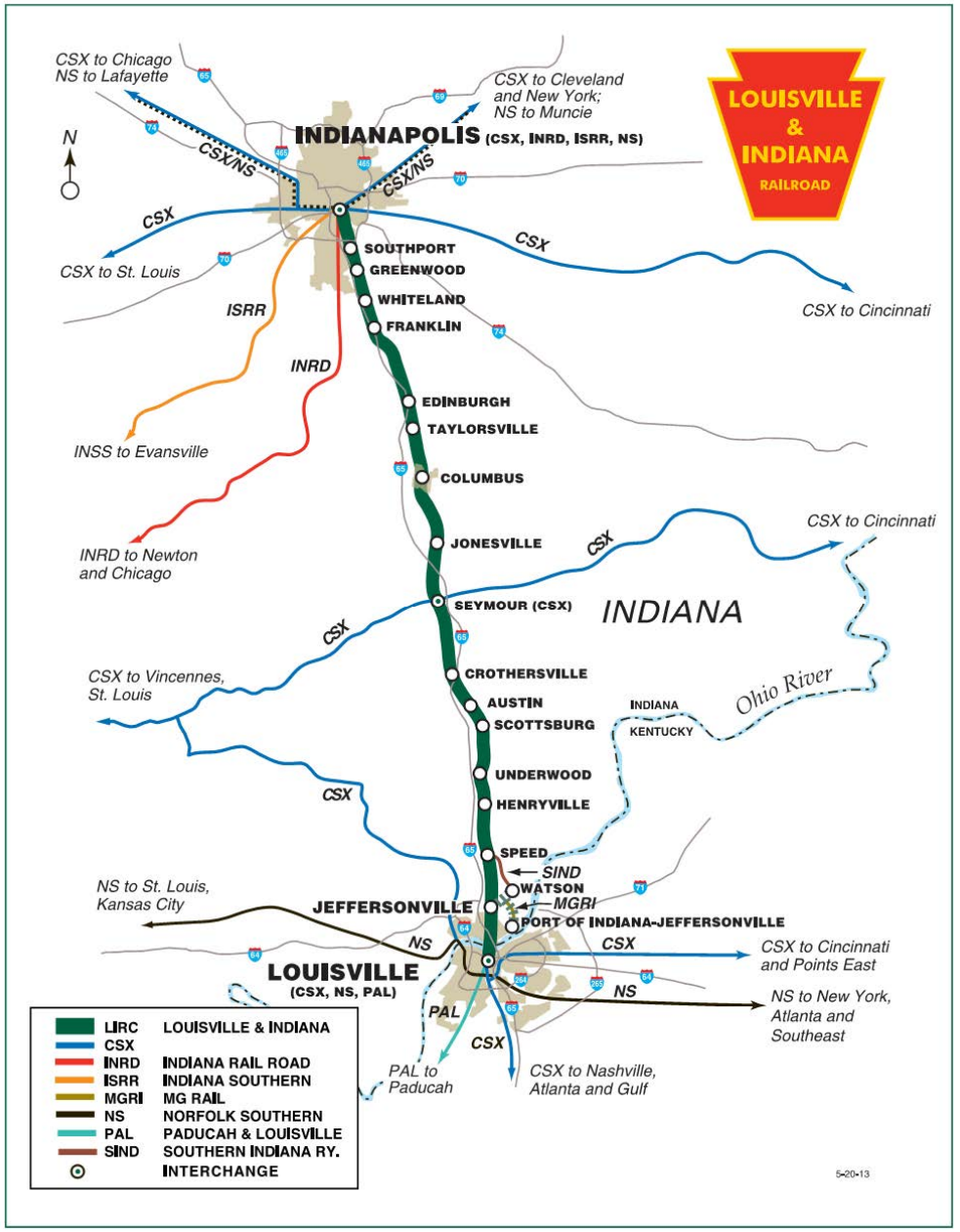
November 21, 2016

AMERICAN STRUCTUREPOINT INC.

PolicyAnalytics, LLC
RESEARCH. ANALYSIS. RESULTS.

Study Impetus

- CSXT to lease and improve rail line between Louisville and Indianapolis
- Rail improvements will allow CSXT to make several changes to rail traffic in the corridor
- Changes to rail traffic are expected to be fully implemented by 2018

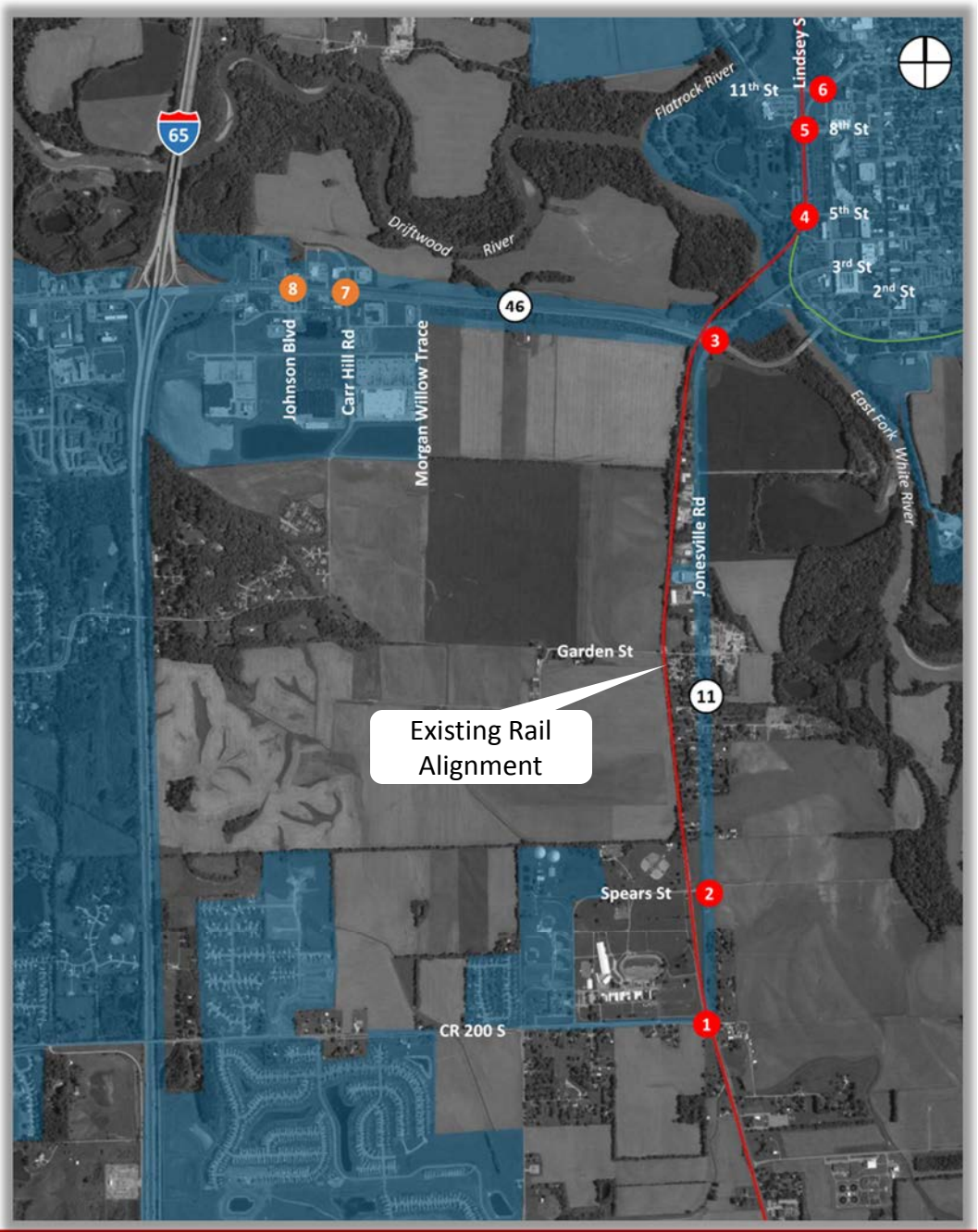


Rail Traffic Changes

Increased Train Volume	Existing	8 per day
	Proposed	22 per day
Increased Train Length	Existing	5,100 ft
	Proposed	7,500 ft
Increased Car Weight (per car)	Existing	263,000 lbs
	Proposed	286,000 lbs
Increased Car Height	Existing	Single Stacked
	Proposed	Double Stacked
Increased Speed	Existing (10-15 mph)	
	2018 Louisville - Indy (49mph)	
	Except Columbus (20 mph)	

Study Objectives

- Identify Impact of Train Events
  - Traffic / Travel Time
  - Columbus Economy
- Identify Mitigation Options
  - Traffic / Travel Time
  - Economic Impact
  - Cost of Improvements



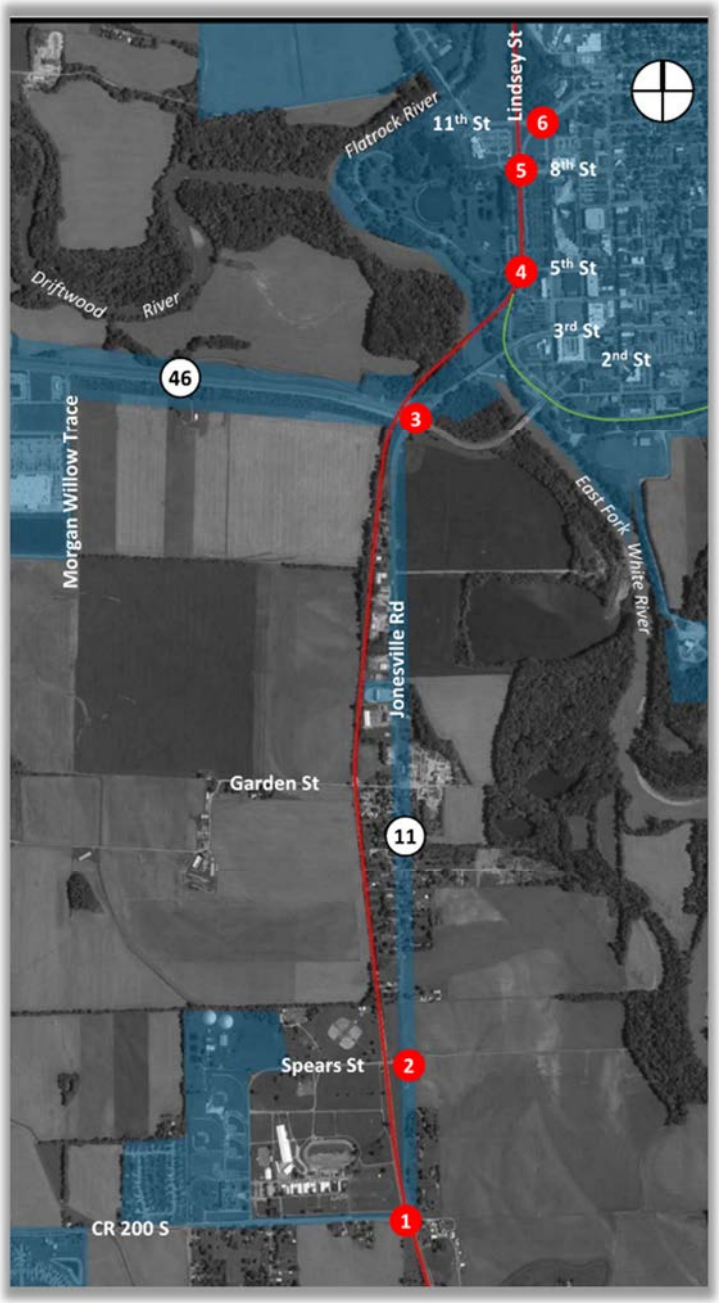
Legend

- 1 — Study Intersection With Adjacent Railroad Crossing
- 8 — Study Intersection Without Adjacent RR Crossing
- City Limits
- Mainline Track
- Spur

RR Track Crossings/ Day

General Public	
362	School Buses
132	Transit Buses
1,900	Delivery Trucks
63,300	Passenger Cars

Emergency Services	
8	Police Emergency Runs
2	Fire Responses
2	Ambulance Runs



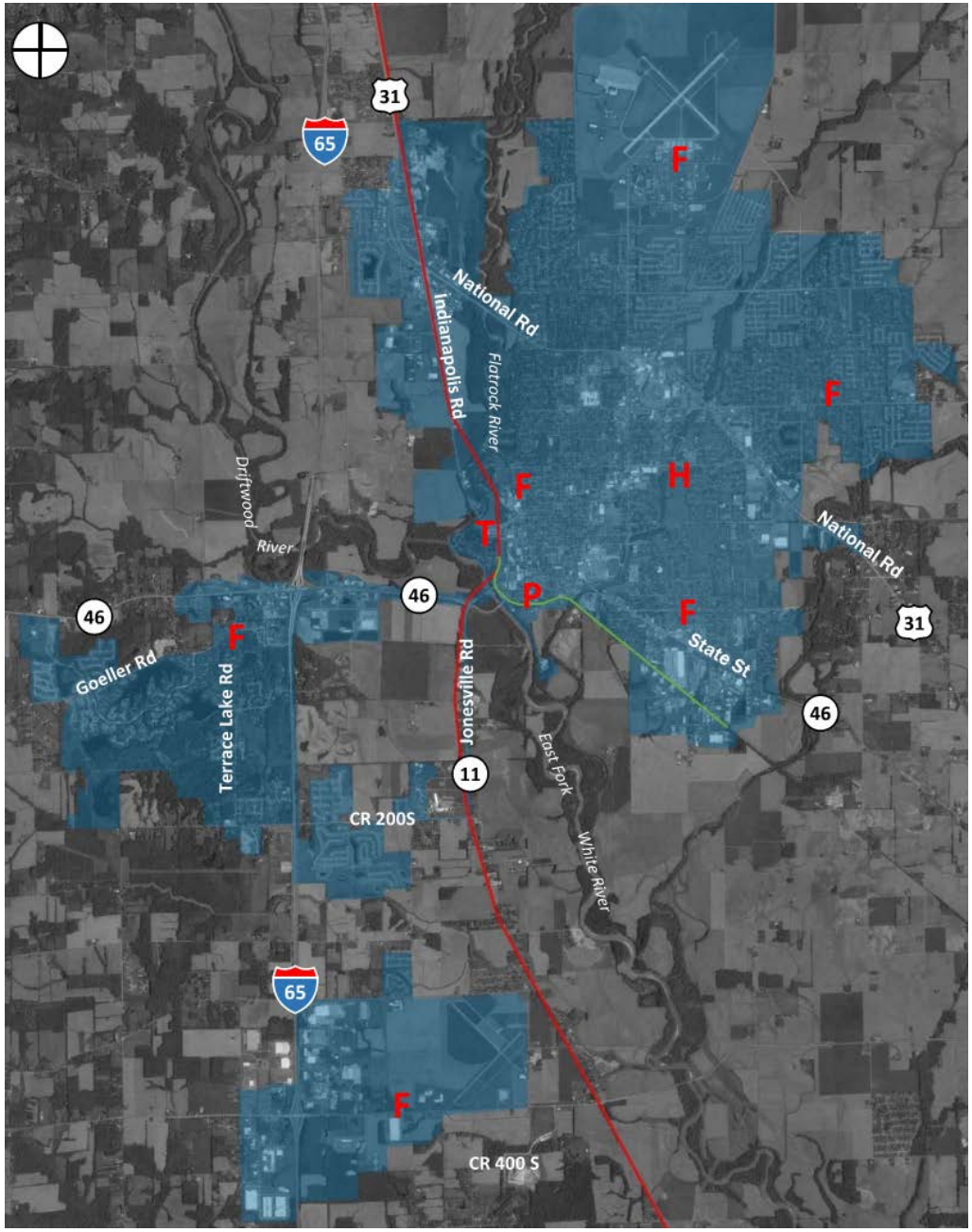
Types of Impacts

Quantitative	Qualitative
Train Delay*	Quality of Life
Economic Impact*	Public Safety Implications
Noise from Trains	Transit Service Impacts
-	School Bus Impacts
-	Access to Public Facilities

* Focus of this study

Public Safety & Transit

- Fire, EMS and Police frequently respond to calls on the opposite side of the tracks
- All transit routes cross the tracks twice an hour
- Emergency response calls are random
- Train events have no set schedule
- **Changes in rail traffic will have substantial negative impacts on each of these services**

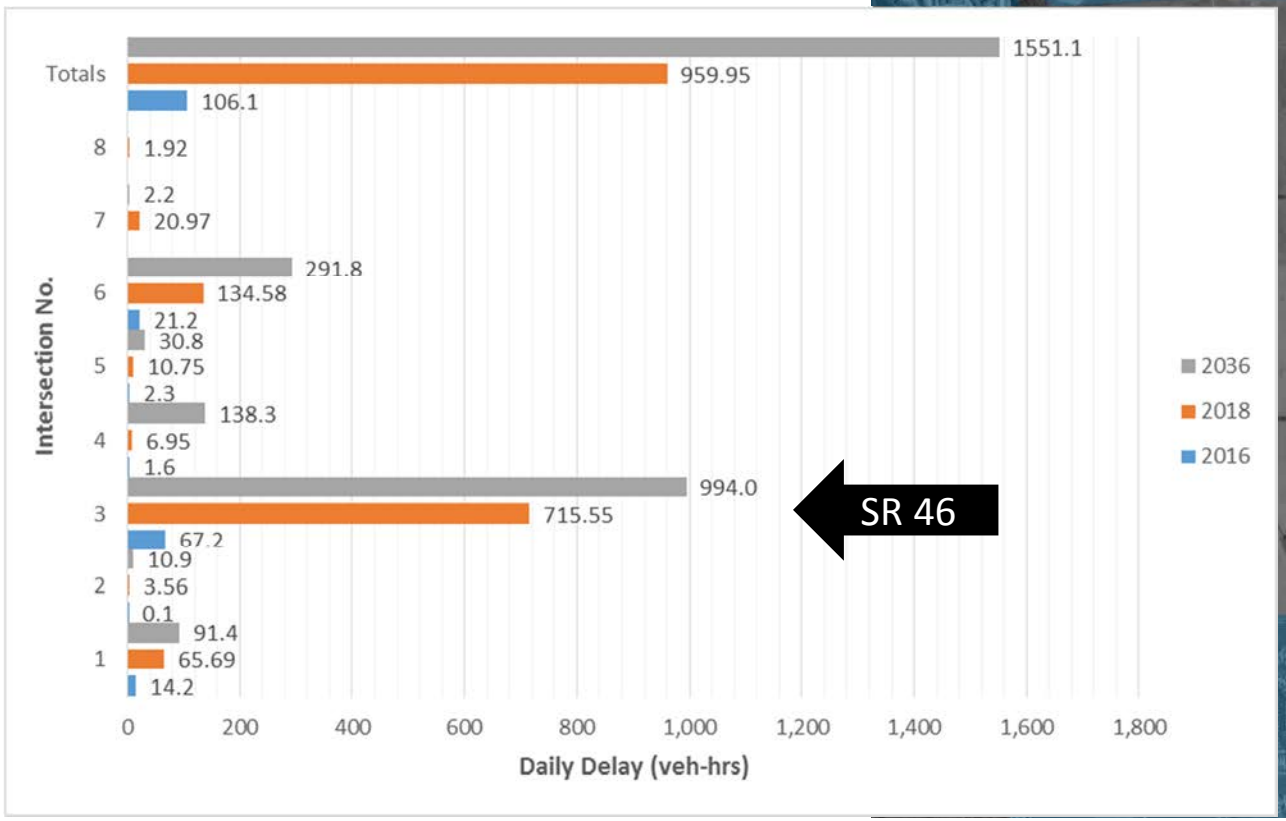


Public Facilities

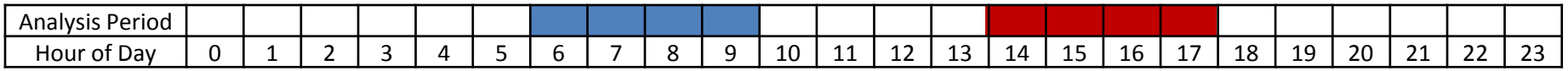
Increased Rail Traffic Results In:

- Less Accessibility
- More Noise for Users
- Longer Emergency Response Times
- Unreliable bus schedules

Train Delay
(Daily Basis)



SR 46 & SR 11



Year	Minutes of Disrupted Traffic Flow on SR 46		Chance of Being Delayed by a Train	
	AM Peak (Eastbound)	PM Peak (Westbound)	AM Peak (Eastbound)	PM Peak (Westbound)
2016	26.6	23	11%	10%
2018	87.5	121	36%	50%
2036	196.5	203.5	**82%**	**85%**

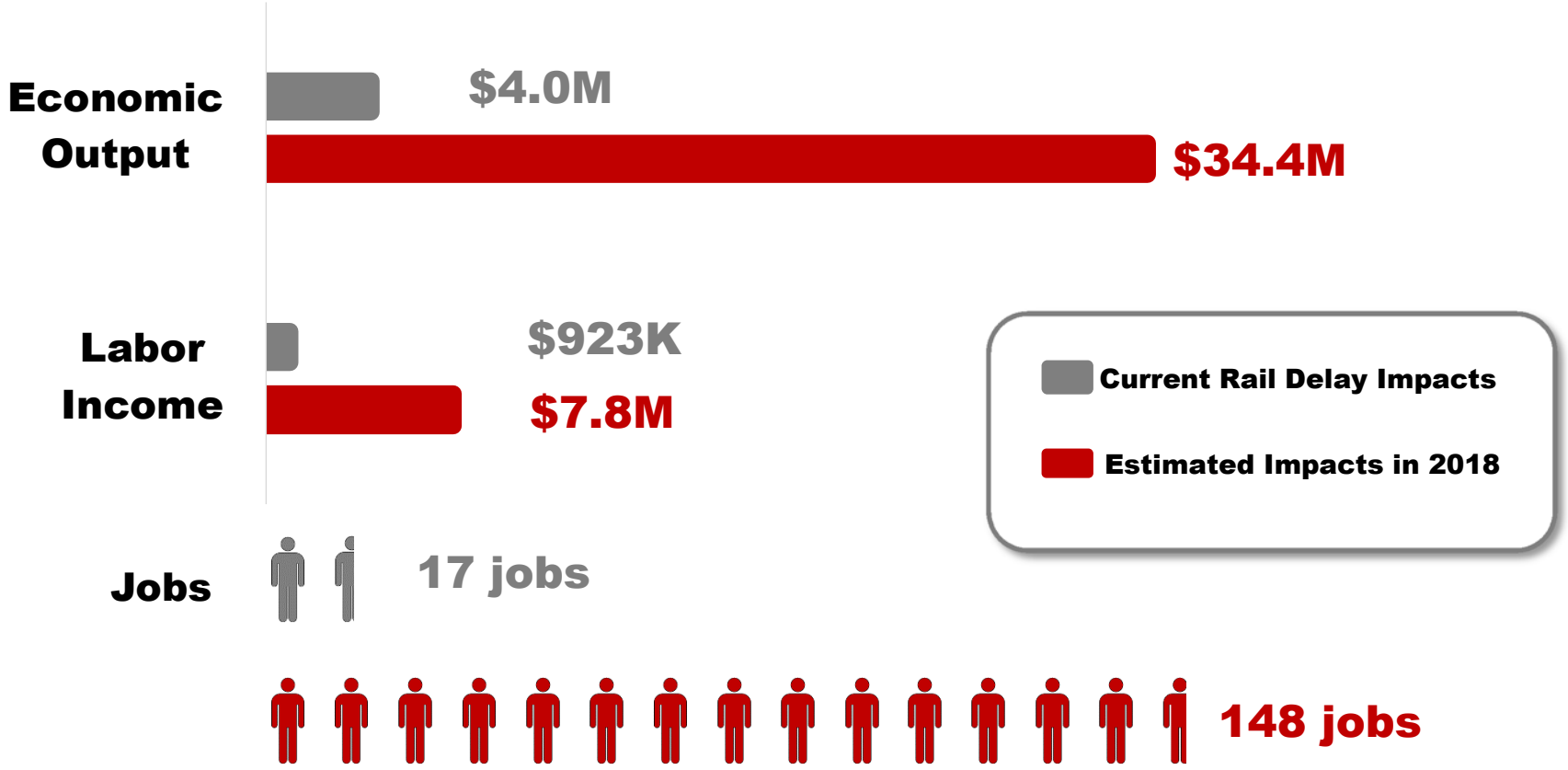
Note: Peak = 4-hour time period

SR 46 crossing is the worst crossing between Louisville and Indianapolis in terms of train delay.

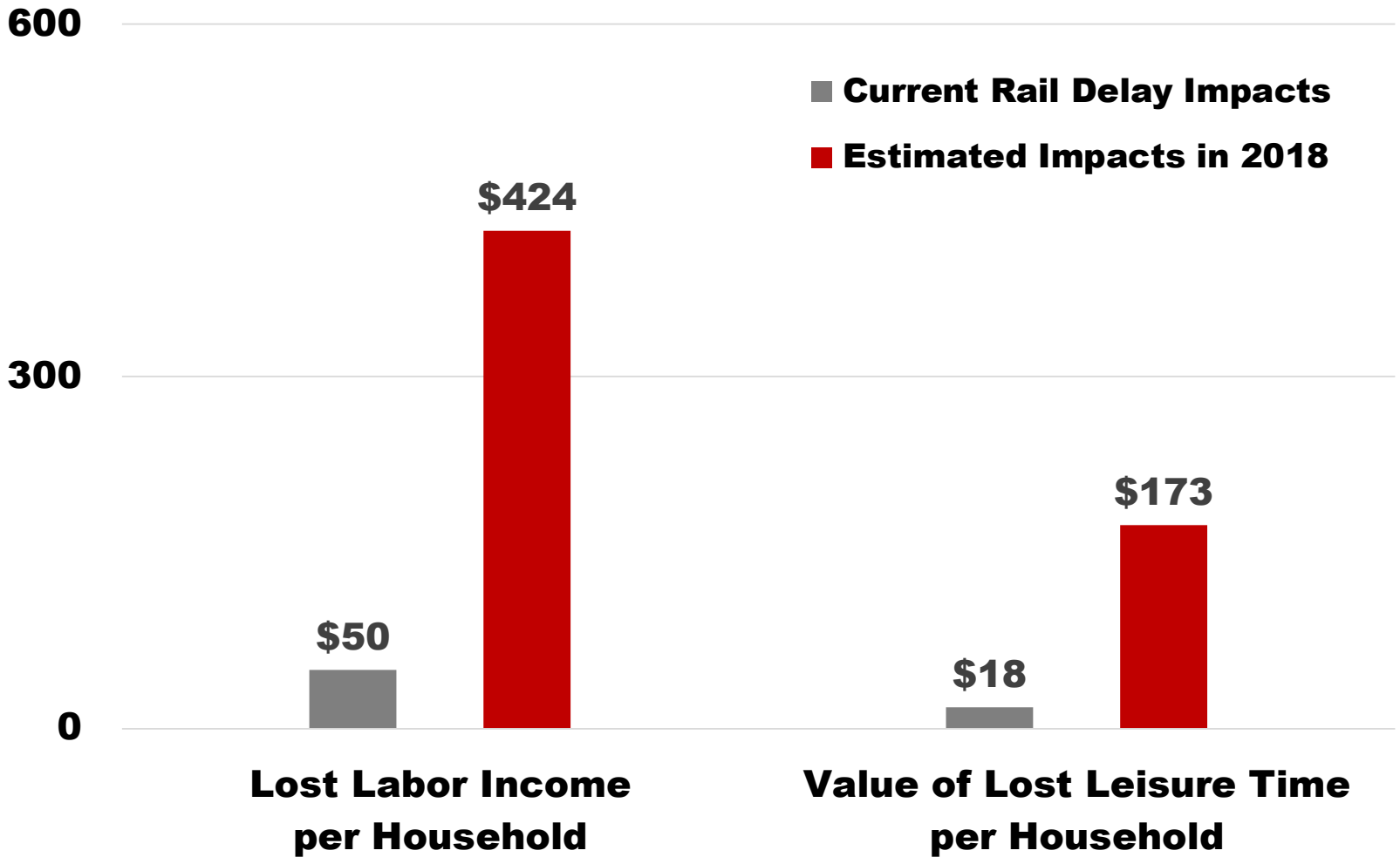
Source: CSX Environmental Analysis Document for proposed rail changes

2018 Economic Impact

After Start of Increased Train Traffic



Economic Impacts in Context

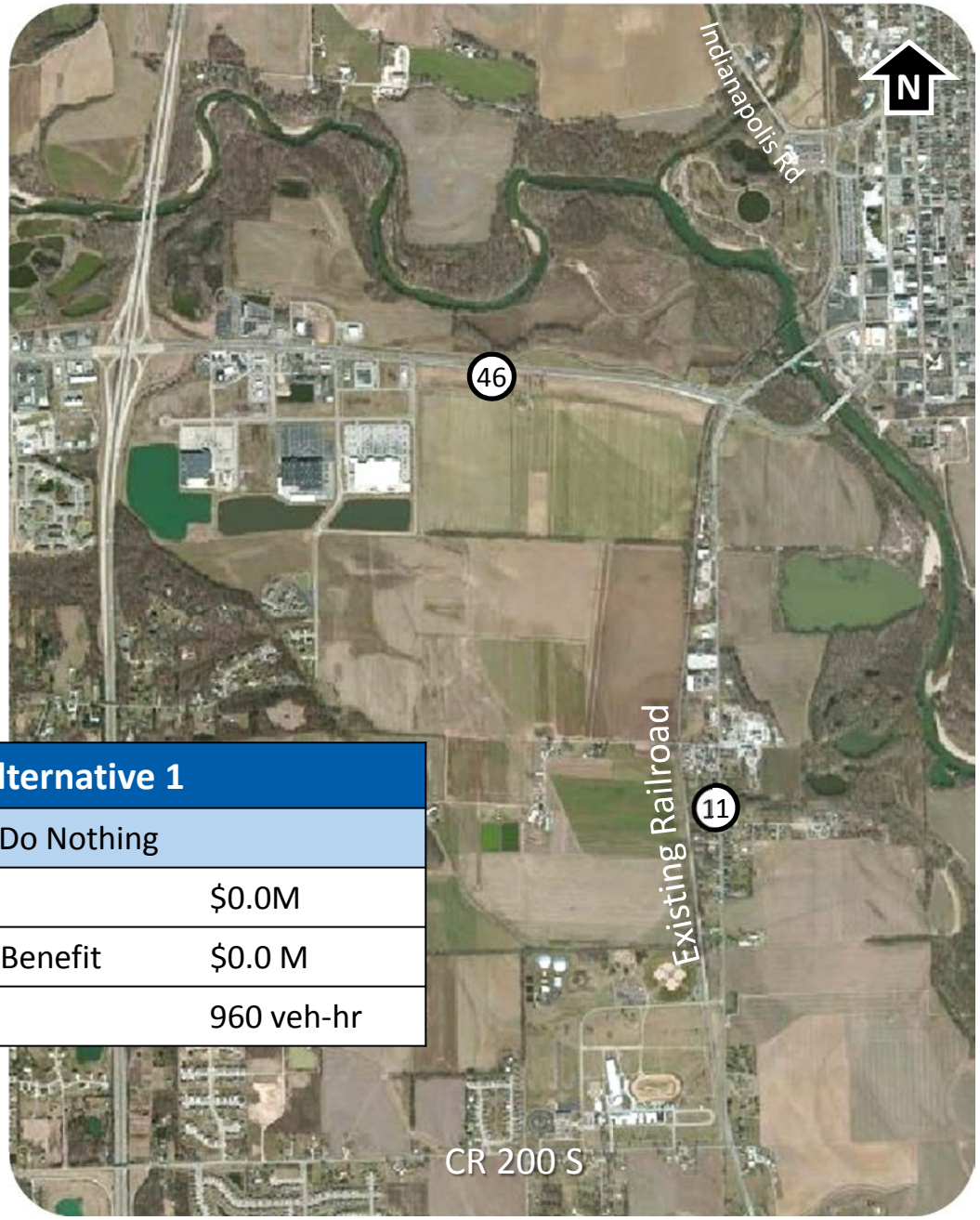


Mitigation

Means to reduce the impact of trains on the community

Alternatives Being Evaluated

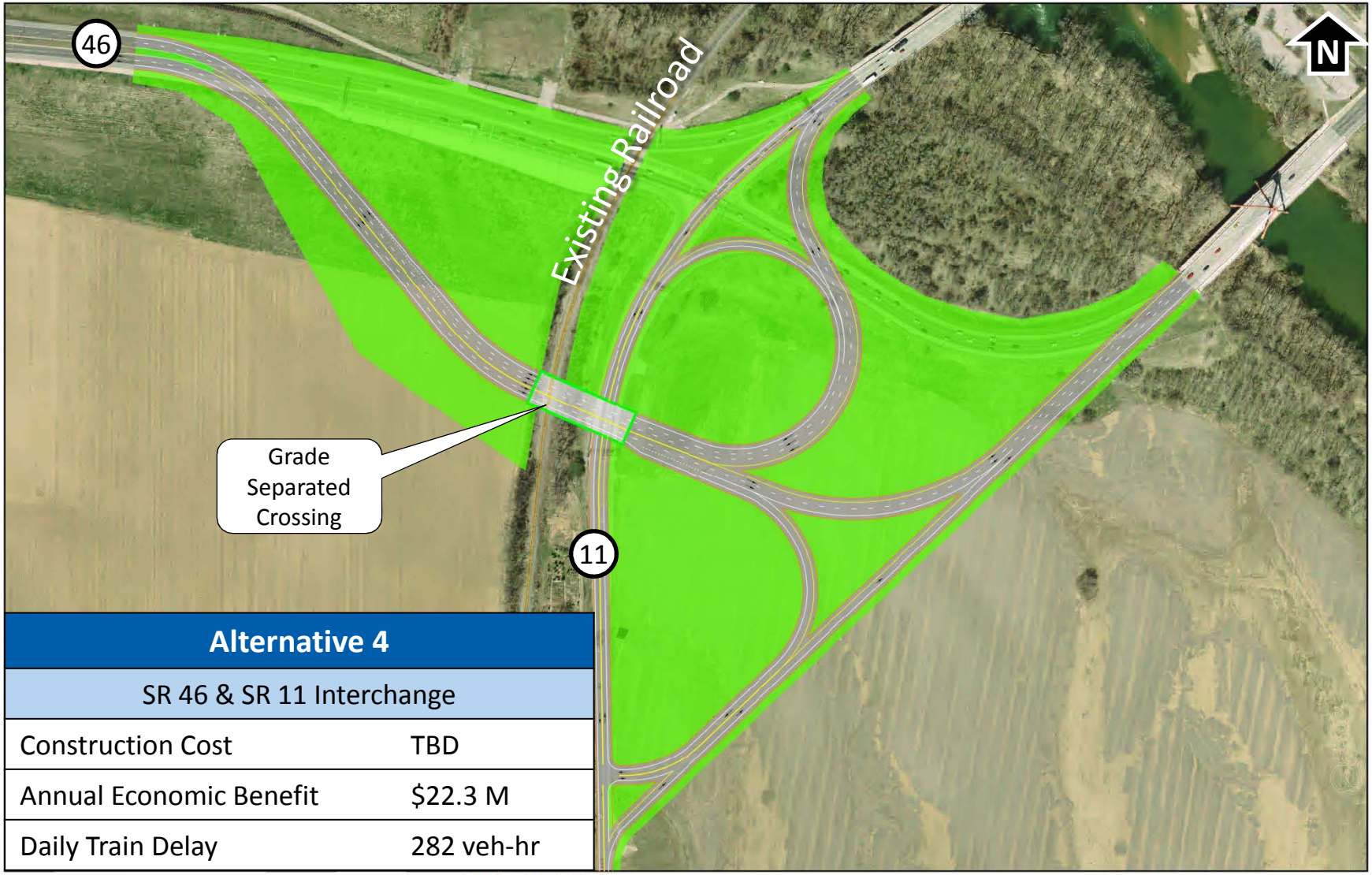
Alternative		Rail Improvements	Roadway Improvements
1	No Build	None	None
2	Railroad Realignment	Railroad realigned to avoid Downtown	New at-grade crossing on SR 46
3	Railroad Realignment + SR 46 Grade Separated Crossing	Railroad realigned to avoid Downtown	Grade separated crossing on SR 46
4	SR 46 & SR 11 Intersection Improvement (INDOT)	Existing railroad alignment retained	SR 46 & SR 11 intersection converted to interchange
5	SR 46 Partially Grade Separated Crossing	Existing railroad alignment retained	Eastbound lanes of SR 46 are grade separated



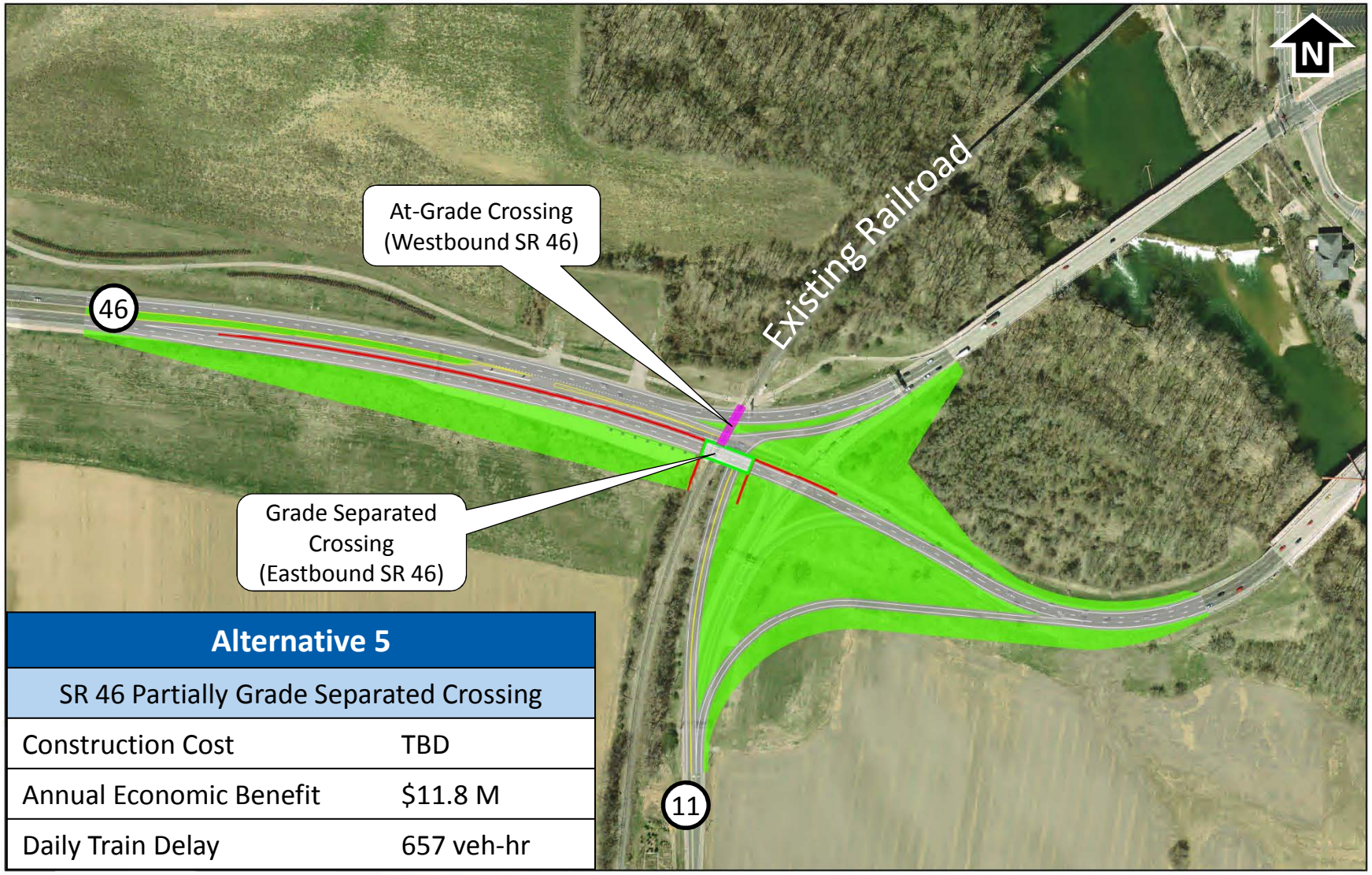
Alternative 1	
Do Nothing	
Construction Cost	$0.0M
Annual Economic Benefit	$0.0 M
Daily Train Delay	960 veh-hr

Alternative 2	
Railroad Realignment	
Construction Cost	TBD
Annual Economic Benefit	$30.2 M
Daily Train Delay	112 veh-hr

Alternative 3	
RR Realignment + SR 46 Overpass	
Construction Cost	TBD
Annual Economic Benefit	$34.0 M
Daily Train Delay	11 veh-hr

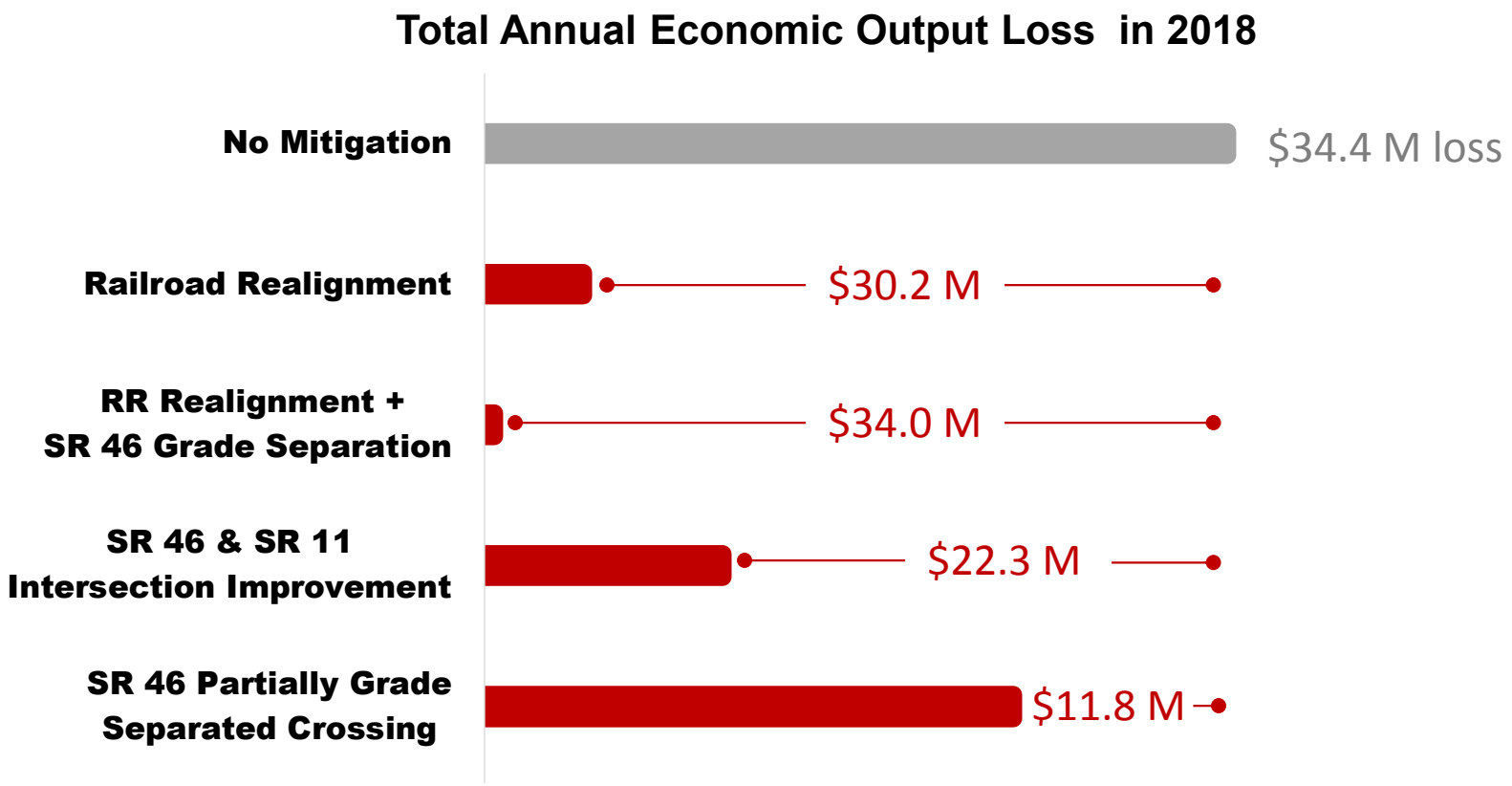


Alternative 4	
SR 46 & SR 11 Interchange	
Construction Cost	TBD
Annual Economic Benefit	$22.3 M
Daily Train Delay	282 veh-hr



Alternative 5	
SR 46 Partially Grade Separated Crossing	
Construction Cost	TBD
Annual Economic Benefit	$11.8 M
Daily Train Delay	657 veh-hr

Economic Impact of Alternatives



Economic Impact Summary of Alternatives

Alternative		2018 Economic Impacts		
		Loss of Economic Output	Loss of Labor Income	Loss of Jobs
1	No Build	$34.4 M	$7.8 M	148
2	Railroad Realignment + SR 46 At-Grade Crossing	$4.2 M	$1.0 M	18
3	Railroad Realignment + SR 46 Grade Separated Crossing	$0.4 M	$0.1 M	2
4	SR 46 & SR 11 Intersection Improvements	$10.1 M	$2.3 M	44
5	SR 46 Partially Grade Separated Crossing	$22.5 M	$5.1 M	97

Economic Impact Comparison

- Quantifies the full impact of rail induced travel delay on the local Columbus economy.
- Provides a consistent process for comparing the economic outcomes of policy alternatives.
- Communicates the full impact of the project to local, state and federal stakeholders and policy makers.
- INDOT uses a simplified and more restrictive benefit/cost methodology to evaluate projects for its transportation program.

INDOT Benefit Cost Methodology

$$\frac{\text{Benefit} = \textbf{User} \text{ Delay Cost Savings of Alternative}}{\text{Cost} = \text{Construction Cost of Alternative}}$$

Project Should NOT Be Undertaken
Further Evaluation of Benefits Necessary
Project Should Be Undertaken

INDOT Benefit Cost Methodology

	Alternative	Construction Cost (1)	2018 Daily Train Delay (veh-hrs)	Train Delay (veh-hrs) thru 2036 (2)	User Delay (3)	Benefit (Travel Time Savings)	B/C Ratio
1	No Build	0	960	5,404,187	$ 81,062,800	$ -	0.0
2	Railroad Realignment	TBD	112	630,663	$ 9,459,940	$ 71,602,860	< 1.0
3	Railroad Realignment + SR 46 Grade Separated Crossing	TBD	11	59,234	$ 888,503	$ 80,174,297	< 1.0
4	SR 46 & SR 11 Intersection Improvement	TBD	282	1,585,367	$ 23,780,512	$ 57,282,288	≥ 1.0
5	SR 46 Partially Grade Separated Crossing	TBD	657	3,696,868	$ 55,453,018	$ 25,609,782	≥ 1.0

(1) ROW costs, wetland mitigation, and floodway mitigation costs are not included.
(2) Annual train delay = Daily Train Delay X 260 days. Annual delays are assumed to increase linearly between 2018 & 2036.
(3) User costs associated with train delay are based on a $15/hour value of commuter costs, as obtained from Section 81.03 the INDOT Design Manual.

Next Steps

- Coordinate & partner with INDOT
- Discuss rail realignment with CSX
- Seek project funding

Questions

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